Space Weather Forecast

Issued on Friday, 30 June 2023 at 01:29 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Moderate solar activity likely. Slight chance of Minor Geomagnetic Storm on 01 July.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate, with an Moderate class flare from AR3354. This region, now in the western hemisphere, remains a very large region and magnetically complex. AR3340 has a history of moderate solar activity, but is becoming difficult to assess as it is now close to the northwest limb. The remaining 3 numbered regions, and two new yet to be numbered regions, are small and magnetically simple, with no significant change.
No Earth directed Coronal Mass Ejections (CME's) were observed in the period.

Solar Wind / Geomagnetic Activity: The solar wind was slightly elevated or occasionally elevated with wind speeds between 440 and 510 km/s. The total magnetic field strength was weak, with the north-south component also weak, and predominantly southwardly directed. Geomagnetic activity was Quiet to Unsettled, but with one Active interval 29/1500-1800 UTC.
Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) has been at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Low to Moderate, with a slight chance of Strong flares, mainly from the large sunspot near centre disc.

Solar Wind / Geomagnetic Activity: A CME which left the Sun on 27 June may glance the Earth early on 01 July, but this is low confidence. In the absence of CME activity the solar wind speeds are expected to remain at predominantly slightly elevated levels today and tomorrow (30th and 1st), perhaps briefly reaching elevated speeds at times. During days 3 and 4 (2nd and 3rd) the solar winds are expected to decrease to background levels.

Today and tomorrow geomagnetic activity is expected to be mostly Quiet to Unsettled with isolated Active intervals, and a slight chance of G1/Minor Storms, mainly tomorrow due to the potential CME glance. For days 3 and 4 (2nd and 3rd) predominantly Quiet geomagnetic activity is expected.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is most likely to remain at background levels with no solar radiation storms occurring. However, there is a slight chance of count rates increasing should any larger flares occur.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	30	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	50	50	50	50
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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